AMENDMENT TO THE CLAIMS

WHAT IS CLAIMED IS:

1. (Currently amended) A method of extracting regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks; and

merging together spatially adjacent blocks that have similar color properties to extract the regions of homogeneous color, wherein the merging step comprises the additional steps of:

extracting a feature vector for each block;

estimate a scalar gradient value for each block as a function of the feature vector, the set of gradient values defining a color gradient field;

digitizing the color gradient field;

preprocessing the digitized color gradient field to produce a smoothed color gradient field; and segmenting the smoothed color gradient field with a watershed algorithm that divides the smoothed color gradient field into a set of spatially connected regions of homogeneous color.

2. (Cancelled)

3. (Currently amended) The method as recited in claim ~~2~~ 1 wherein the extracting step comprises the steps of:

transforming data in each block into a perceptually uniform color system; and

calculate N moments of the data in each block for each color component, the set of moments being the feature vector for the block.

4. (Currently amended) The method as recited in claim ~~2~~ 1 wherein the estimating step comprises the steps of:

obtaining distances between the feature vector of each block and the feature vectors of each neighboring block; and

selecting the maximum of the distances as the gradient value for the block.

5. (Original) The method as recited in claim 4 wherein the obtaining step comprises the steps of:

applying a weighted Euclidean distance metric to the feature vectors to obtain the distances.

6. (Original) The method as recited in claim 4 wherein the obtaining step comprises the steps of:

converting the feature vector of each block into a probability mass function-based representation for each color component;

computing distances between the probability mass function-based representations of each block and the corresponding probability mass function-based representations of each neighboring block; and

selecting the maximum distance of the probability mass function based representations as the gradient value for the block.

7. (New Claim) A method for representing regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks;

estimating a scalar gradient value for each block by defining a color gradient field corresponding to each block;

representing data corresponding to the digital picture as a probability distribution of blocks of the digital picture that are spatial connected and homogenous in color for a search application.

8. (New Claim) A method for representing spatial relationships between regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks;

estimating a scalar gradient value for each block by defining a color gradient field corresponding to each block;

representing data corresponding to the digital picture as a probability distribution function calculated in view of blocks of the digital picture that are homogenous in color and distances between the blocks that are homogenous in color.